title. 연습문제 1.3 date.

#1-(a) $\lim\limits_{x\to 2} \dfrac{x-2}{x^2-4} = \lim\limits_{x\to 2} \dfrac{\cancel{x-2}}{\cancel{(x-2)}(x+2)}$

$= \lim\limits_{x\to 2} \dfrac{1}{x+2} = \dfrac{1}{4}$

#1-(b) $\lim\limits_{x\to \infty} \dfrac{2x^2+1}{3x^2+2x} = \lim\limits_{x\to\infty} \dfrac{2+\frac{1}{x^2}}{3+\frac{2}{x}} = \dfrac{2}{3}$

#1-(c) $\lim\limits_{x\to -1} \dfrac{\sqrt{x+2}-1}{x+1} = \lim\limits_{x\to -1} \dfrac{\cancel{x+1}}{\cancel{(x+1)}(\sqrt{x+2}+1)}$

$= \lim\limits_{x\to -1} \dfrac{1}{\sqrt{x+2}+1} = \dfrac{1}{2}$

#1-(d) $\lim\limits_{x\to\infty} \left(\sqrt{x^2+2x}-x\right) = \lim\limits_{x\to\infty} \dfrac{2x}{\sqrt{x^2+2x}+x}$

$\cancel{= \lim\limits_{x\to\infty} \dfrac{\quad}{\sqrt{x^2+}}}$

$= \lim\limits_{x\to\infty} \dfrac{2}{\sqrt{1+\frac{2}{x}}+1}$

$= \dfrac{2}{2} = 1.$

#2. $\left.\begin{array}{l} \lim\limits_{x\to 1^+} f(x) = \lim\limits_{x\to 1^+} x = 1 \\ \lim\limits_{x\to 1^-} f(x) = \lim\limits_{x\to 1^-} (x+1) = 2 \end{array}\right\}$

↳ $\lim\limits_{x\to 1^+} f(x) = 1 \neq 2 = \lim\limits_{x\to 1^-} f(x)$ 이므로

$\lim\limits_{x\to 1} f(x)$ 는 존재하지 않는다. Q.E.D.